

Observations of Comets *a* 1896 (*Perrine-Lamp*) and *b* 1896 (*Swift*), made at the Royal Observatory, Greenwich.

(Communicated by the Astronomer Royal.)

The observations were made with the Sheepshanks' Equatorial, aperture 6·7 inches, by taking transits over two cross-wires at right angles to each other, and each inclined 45° to the parallel of declination. Magnifying power 55.

Greenwich Mean Solar Time.			Observer.	☿—*R.A.		Corr. for Refraction.	Log factor of Parallax.	☿—*N.P.D.	Corr. for Refraction.	Log factor of Parallax.	No. of Comps.	Apparent R.A. of ☿			Apparent N.P.D. of ☿			Comp. Star.				
1896.	d	h	m	s	m	s	s	'	"	"		h	m	s	°	'	"					
Observations of Comet <i>a</i> 1896.																						
Apr.	12	9	4	2	B.	+0	48·25	+0·01	9·6870	-10	55·9	-0·1	0·7119	4	4	34	2·93	49	10	8·5	<i>a</i>	
	13	9	9	7	"	+2	14·33	0·00	9·6862	-	4	19·3	-0·1	0·7227	4	4	35	28·99	49	16	45·2	<i>a</i>
Observations of Comet <i>b</i> 1896.																						
Apr.	20	8	17	41	B.	+0	33·98	-0·06	9·6140	+	8	43·4	+0·5	0·8153	2	61	50	20·4	<i>c</i>	
	20	8	20	13	"	-0	14·44	-0·02	9·6129	+	2	35·4	+0·3	0·8174	2	3	34	42·22	61	49	45·7	<i>c</i>
	20	8	24	13	A. C.	-0	14·39	-0·02	9·6115	+	2	0·8	+0·2	0·8201	4	3	34	42·27	61	49	48·4	<i>d</i>
	20	8	25	15	"	-1	8·61	+0·10	9·6113	-11	41·0	-1·0	0·8206	1	3	34	41·76	59	7	12·6	<i>e</i>	
	21	8	32	51	"	+1	53·33	+0·04	9·6164	-	6	4·7	-0·5	0·8240	6	3	32	55·98	53	48	45·4	<i>f</i>
	23	8	52	45	H.	+3	14·34	+0·02	9·6206	-	3	22·8	-0·4	0·8362	7	3	28	21·37	46	29	7·9	<i>g</i>
	26	8	45	38	B.	-1	0·63	+0·05	9·6554	-13	14·5	-1·0	0·8276	4	3	18	51·46	46	29	5·8	<i>h</i>	
26	8	45	38	"	-2	38·68	+0·03	9·6554	-	7	14·3	-0·6	0·8276	4	3	18	51·58	46	27	12·5	<i>h</i>	
26	9	6	1	A. C.	-2	41·38	+0·05	9·6331	-	9	7·2	-1·0	0·8467	2	3	18	48·90					

Greenwich Mean Solar Time.	Observer.	—* R.A.		Log factor of Refraction.	Corr. for Refraction.	Log factor of Parallax.	—* N.P.D.	Corr. for Refraction.	Log factor of Parallax.	No. of Comps.	Apparent R.A. of		Apparent N.P.D. of	Comp. Star.
		d	h m s	m s.	s		' "	"			h m s	' "	° ' "	
1896. Apr. 27	B.	8 33	10	+ 1 43.57	- 0.01	9.6763	+ 2 51.7	+ 0.2	0.8153	4	3 15	3.48	44 15 24.3	k
28	A. C.	8 34	59	+ 1 30.09	0.00	9.6840	+ 1 21.7	+ 0.1	0.8173	5	3 10	51.03	42 7 26.0	l
29	B.	8 48	56	+ 1 26.85	0.00	9.6757	- 2 9.2	- 0.2	0.8325	4	3 6	16.22	40 5 31.1	m
May 1	H.	9 24	38	- 3 41.99	- 0.02	9.6211	+ 6 8.7	+ 0.7	0.8662	6	2 56	9.93	36 23 28.8	n
2	B.	9 29	33	+ 0 16.70	- 0.02	9.6097	+ 11 6.7	+ 1.5	0.8722	4	2 50	40.80	34 44 9.2	o
3	C.	9 23	24	+ 0 13.09	0.00	9.6179	+ 2 30.7	+ 0.3	0.8698	4	2 45	0.24	33 12 44.4	p
3	A. C.	9 26	5	+ 0 12.27	0.00	9.6113	+ 2 23.5	+ 0.2	0.8717	6	2 44	59.42	33 12 37.1	p
4	B.	9 5	4	- 0 50.68	0.00	9.6529	+ 1 9.6	+ 0.1	0.8574	4	2 39	7.43	31 48 36.2	q
4	C.	9 14	23	- 0 54.04	0.00	9.6324	+ 0 25.4	+ 0.1	0.8655	2	2 39	4.07	31 47 52.0	q

Notes.

The observations are corrected for refraction, but not for parallax. They are also corrected for the error of inclination of the wires and for the motion of the comet.

April 12.—Comet exceedingly faint.

" 13.—Comet extremely faint. Observations difficult and doubtful. Sky not quite clear.

" 20.—Comet bright with condensation. Visible in bright twilight.

" 21.—Sky hazy. Comet less clear than on previous night. Still readily visible in twilight.

May 1.—The comet had a distinct condensation.

The initials C., H., A. C., B., are those of Mr. Cowell, Mr. Hollis, Mr. Crommelin, and Mr. Bryant respectively.

Comparison Stars.

	Star's Name.	Assumed R.A. 1896 ^o .			Assumed N.P.D. 1896 ^o .	Authority.
		h	m	s		
<i>a</i>	WB (2) IV. 658	4	33	14.30	49 21 18.3	Bonn Astr. Gesell. Catalogue, Paris Catalogue, 1875.
<i>b</i>	BD + 28° No. 560	3	34	8	61 42	Bonn Observations, vol. iv.
<i>c</i>	BD + 28° No. 563	3	34	56.58	61 47 53.6	Pulkova Catalogue (Romberg), 1875.
<i>d</i>	WB (2) III. 726	3	35	50.16	62 1 39.4	Weisse's Bessel (2).
<i>e</i>	Piazzi III. 96	3	31	2.55	59 13 27.0	Leiden Astr. Gesell. Zones II, 243.
<i>f</i>	Lalande 6438	3	25	7.04	53 52 18.1	Lund. Astr. Gesell. Zones 75, 79, XV.
<i>g</i>	Groombridge 663	3	19	52.24	46 42 33.2	Greenwich Observations, 1894.
<i>h</i>	Groombridge 680	3	21	30.42	46 36 30.7	" " 1894, 1895.
<i>k</i>	OA (N) 3666	3	13	20.21	44 12 42.1	Bonn Astr. Gesell. Catalogue.
<i>l</i>	Groombridge 635	3	9	21.31	42 6 13.7	Greenwich Observations, 1891, 1893.
<i>m</i>	BD + 49°, No. 871	3	4	49.82	40 7 49.8	Bonn Astr. Gesell. Catalogue.
<i>n</i>	OA (N) 3433	2	59	52.57	36 17 28.4	Cambridge (U.S.) Astr. Gesell. Catalogue.
<i>o</i>	Lalande 5356	2	50	24.87	34 33 9.4	Helsingfors-Gotha Astr. Gesell. Catalogue.
<i>p</i>	Lalande 5202	2	44	47.99	33 10 21.3	" " " " "
<i>q</i>	BD + 58°, No. 519	2	39	59.06	31 47 33.9	" " " " "

BD + 28°, No. 563, is the double star Σ 429. The companion star is of the 11th magnitude.
Piazzi III. 96. The proper motion of $-0^{\text{s}}.0077$ has been applied in R.A. deduced from comparison with Piazzi, Lalande, and Weisse's Bessel (2).

Royal Observatory, Greenwich:
1896 May 8.

Ephemeris of the Satellites of Mars, 1896-97. By A. Marth.

Professor Hermann Struve has been good enough to communicate, in advance of the publication of his observations of the satellites, the results which he has deduced for the longitudes l and mean motions n of the satellites, and also for the semi-axes a of their orbits. His values are ($l=w+N$, w being the orbital longitude reckoned from N , the ascending node of the orbit on the plane parallel to the Earth's equator) for 1894 October 0.0 Greenwich :

$$\begin{array}{lll} \text{Phobos } l_1 = 296^\circ 20 & n_1 = 1128^\circ 84394 & a_1 = 12'' 948 \text{ at dist. r.} \\ \text{Deimos } l_2 = 186^\circ 38 & n_2 = 285^\circ 16194 & a_2 = 32'' 321 \end{array}$$

Adopting these values, and referring the positions of the satellites to the assumed plane of the planet's equator, the data of the "Ephemeris for physical observations of *Mars*" become available, and the areocentric longitudes $l-L$ of the satellites reckoned from the point of their orbits in opposition to the Earth, and the semidiameters a b of the apparent orbits, will be :

Greenwich Noon. 1896.	P+90°	Phobos.			Deimos.		
		a_1	b_1	l_1-L	a_2	b_2	l_2-L
Sept. 9	56° 58	13' 49	-0" 68	329° 48	33" 74	-1" 71	250° 11
11	56° 92	13' 66	0" 60	66° 33	34' 17	1' 49	99° 54
13	57° 27	13' 83	0" 51	163° 21	34' 60	1' 27	308° 99
15	57° 62	14' 01	0" 42	260° 11	35' 05	1' 05	158° 46
17	57° 97	14' 19	0" 33	357° 03	35' 51	0" 83	7° 96
19	58° 32	14' 38	0" 25	93° 96	35' 99	0" 62	217° 48
21	58° 66	14' 58	0" 16	190° 92	36' 48	0" 40	67° 02
23	59° 00	14' 78	-0" 08	287° 90	36' 98	-0" 19	276° 58
25	59° 34	14' 99	+0" 01	24° 91	37' 50	+0" 02	126° 16
27	59° 67	15° 20	0" 09	121° 94	38° 03	0" 23	335° 77
29	60° 00	15° 42	0" 17	219° 00	38° 58	0" 43	185° 41
Oct. 1	60° 32	15° 64	0" 25	316° 09	39° 14	0" 63	35° 07
3	60° 62	15° 87	0" 33	53° 20	39° 72	0" 82	244° 76
5	60° 92	16° 11	0" 40	150° 34	40° 31	1" 00	94° 48
7	61° 20	16° 35	+0" 47	247° 52	40° 92	+1" 18	304° 23
9	61° 47	16° 60	0" 54	344° 72	41° 54	1" 35	154° 01
11	61° 73	16° 86	0" 60	81° 96	42° 18	1" 51	3° 83
13	61° 97	17° 12	0" 66	179° 23	42° 83	1" 66	213° 68